

REMARKS

This amendment responds to the official action mailed June 11, 2009, wherein claims 1, 2, 8, 9, 12 and 32 were considered unpatentable over US 5,111,994 – Gonzalez under 35 U.S.C. §103.

The claims have been amended to obviate the rejection. The differences between the invention and the references cited are such that the subject matter claimed as a whole is not shown to have been obvious. Applicant requests reconsideration, allowance of the pending claims and rejoinder and allowance of the claims that have been withdrawn as nonelected but depend directly or indirectly from claim 1.

Claim 1 has been amended. New claims 33 and 34 are added. Two of the claims that had been withdrawn as nonelected (13 and 14) have been cancelled, and thus the number of claims is unchanged. The amended and new claims read on the embodiments of Figs. 4 and 7-14, which are the embodiments elected in the Response to the Restriction Requirement filed September 5, 2007.

In the elected embodiments, the hub 64 of the aerator has certain structural features for guiding discrete aerated jets inside the showerhead. The base 67 of hub 64 (see Fig. 7) has on its exterior a deflecting surface 68. The hub 64 has essentially axially arrayed guide channels 71, 171 with portions 72, 172 at the deflecting surface 68 that guide discrete aerated jets outwardly from the hub 64, radially or at an offset from radial, toward the apertures in the plate 50 from which the jets exit from the jet disk and thereby exit from the showerhead as sprayed jets.

The amended claims particularly and distinctly recite aspects that cannot be found in US 5,111,994 - Gonzalez or the other citations of record, which aspects are not suggested by the cited references either separately or in combination, and cannot be regarded as the results of simple common sense changes within the routine abilities of the person of ordinary skill. There is no basis to assert that the invention claimed as a whole would have been obvious.

Applicant has concurrently submitted an information disclosure statement containing references cited in a search report in the corresponding application in

Japan. English abstracts are included. The claimed invention is neither disclosed nor remotely suggested by these references.

In the present official action, the Examiner takes the position that Gonzalez '994 discloses an aeration hub wherein the hub has on an exterior of the hub a guide surface for guiding the discrete aerated jets toward the apertures from which the jets exit the jet disk. Applicant respectfully disagrees that Gonzalez discloses or suggests such subject matter. According to the disclosure of Gonzalez at col. 3, lines 15-27, the hub (namely the portion within the inner region 16a in Fig. 2) has four Venturi passages that accomplish aeration and carry the aerated water to the outlets from which jets are emitted from the showerhead.

Each Venturi passage in Gonzalez opens at a funnel shaped inlet 100, narrows in diameter up to the point of an air inlet from channel 25, and widens again to provide a low pressure zone at which air is sucked into the flow leading into a mixing chamber 20 (two chambers 20A, 20b being shown in Fig. 2). There is no guide surface on the exterior of a hub shown or suggested by the four Venturi passages in Gonzalez. Passageways through a body are neither the same as or similar to guides on the surface of a hub.

It is erroneous to conclude that the cross section view through the hub in Gonzalez's Fig. 2, taken on a plane that intersects two diametrically spaced axial passages, shows guides on the surface of a hub. It is only by hindsight that one can even point out the inner boundaries of the two Venturi passages in that view. These boundaries are not arranged on an exterior of a hub as claimed.

In the official action, the Examiner allows that Gonzalez '994 does not disclose essentially axially arrayed guides for guiding the jets. However, the Examiner states that such a modification would have been an obvious design choice, "because since the exterior surface of the hub provides a guide surface for the aerated jets, the addition of axially arrayed guides will cause the hub surface to still function the same in guiding the aerated jets." Reconsideration is requested. There is no exterior surface of a hub shown or described or suggested in Gonzalez providing a guide surface for aerated jets.

In addition to the fact that Gonzalez has no hub surface aspect, one cannot reasonably conclude that a structure as in Gonzalez, altered so that the passageways are changed to axially arranged guides on a hub surface, would still function the same way. In Gonzalez, the passageways are Venturis contoured to suck in air, and the downstream end of the passageways are turbulence chambers for mixing. Changing them to surface guides would eliminate the aspect of a changing diameter contour along a passage. There would be no Venturi effect to suck air into the flow. There would be no mixing chamber for air and water coupled to the outlet orifices. There would be no aeration.

Claim 1 has been amended to patentably distinguish over Gonzalez by inclusion of additional structural aspects that are not disclosed or suggested, even if one regards a cross-sectional view through axial passages as in Gonzalez to show the outer surfaces of a hub. According to claim 1 as amended, the hub has, on an exterior of the hub, essentially axially arrayed guides and a deflector arranged on a base of the hub for guiding the discrete aerated jets outwardly from the hub toward the apertures from which the jets exit the jet disk. Such a structure is neither disclosed nor suggested in Gonzalez. The teachings of Gonzalez, even with the addition of routine variations that a person of ordinary skill might consider likely to improve Gonzalez, do not meet applicant's invention as claimed.

Applicant's claims define over a structure wherein axial guides are placed inside a passage that is axially oriented. Applicant's flow is redirected by a deflector, outwardly from the hub, in a partly radial pattern, to the exit apertures. The deflector on the base of the hub serves to deflect the discrete aerated water jets into a thin space 55 between the front plate 54 and the rear plate 52 and to the exit apertures from which the spray emerges. There is no comparable teaching or suggestion in Gonzalez, and no reasonable basis to believe that these additional aspects might be routinely considered likely to provide benefits over Gonzalez.

In Gonzalez '994, aerated water jets passing through their respective mixture chamber 20 proceed continuously in the same direction, parallel to the axis of the showerhead. Contrary to the assertions in the official action, there is no guidance provided from the surface of a hub in Gonzalez. Even assuming that the Venturi

passage surfaces orient the flow (although they are not the surface of a hub), there is no deflector arranged at the base end of a hub or passage or other point, to reorient Gonzalez's flow. The flow in Gonzalez is along a straight line through the passages 100, mixing chambers 20 and out through jet ports 5. The cited reference fails to meet multiple aspects of the invention claimed.

A person of ordinary skill could not reasonably expect or assume from Gonzalez, or from the other cited art, that a deflector as claimed could effectively guide discrete aerated water jets to openings, which in applicant's case are displaced outwardly from the hub, in a plate bounding a thin chamber. Therefore, there is no basis to assert that the invention would have been obvious as defined in claim 1 to include a hub whose exterior has essentially axially arrayed guides and a deflector arranged on a base of the hub for guiding the discrete aerated jets outwardly from the hub toward the apertures from which the jets exit the jet disk.

All the claims depend directly or indirectly from claim 1 and are allowable for the foregoing reasons. The dependent claims recite additional aspects that further distinguish from the prior art. Among other claims, claim 8 recites that the discrete aerated jets are each coordinated to a water jet. Although Gonzalez has Venturi passages that terminate in separate water jets 5, there is nothing in Gonzalez to lead a person of ordinary skill to believe that it would be possible, let alone likely to be beneficial, to deflect discrete jets to particular jet outlets that are radially spaced from a hub.

Claim 12 recites that the guides on the exterior of the hub comprise inclined channels. Nothing similar is found or suggested in the reference relied upon. In the official action, it is stated that to incline guides would have been a design choice. However no explanation has been advanced as to how this aspect could possibly be a routine choice of design. The person of ordinary skill considering Gonzalez has no reason to even consider doing anything but providing closed passages leading to each outlet, because the Venturi passages 20 terminate at the jet orifices. There is no basis to assert that the invention claimed as a whole would have been obvious.

New claims 33 and 34 respectively state that the channels are angularly offset from radial or curved in the plane of the jet disk (see Fig. 13). Even using improper

hindsight to suggest that guides on the outside of a hub, instead of closed passages, should be used to aim aerated jets in the direction of radially displaced outlets, there is no logical basis to assert that it would be advantageous or possible to arrange guides that are not simply radial and instead are offset or even are curved in the plane of the jet disk. There is likewise no basis to assert that the invention defined in these claims would have been obvious.

The claims have been amended to better distinguish over the cited references. The differences between the invention and the prior art are such that the subject matter claimed as a whole is not shown to have been known or obvious. Claims 1, 2, 8, 9, 12 and 32-34 are allowable over the citations of record. Applicant requests reconsideration and allowance of claim 1 and all the claims depending from claim 1, including the elected claims and also the nonelected claims that have been withdrawn from consideration.

Respectfully submitted,

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